

When is a Negative Search  
Result Positive?

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For many years, I have been laboring, at least amongst my fellow information scientists, the notion of a *negative* search. None of the library or reader surveys I know of has ever evaluated information systems in terms of their speed and efficiency in showing that “no information is available” in answer to a particular question. Indeed, I have had to remind library colleagues that a scientist who is bubbling over with enthusiasm about his latest brain-child is not necessarily overjoyed that the reference librarian has turned up 58 references which show that the idea is about original as sin and motherhood.

It is understandable that the research scientist is not always well motivated to do a comprehensive literature search. Instead, he often talks to the most logical colleague, who will say something like, “Didn’t Joe Schmaltz play with that problem about ten years ago?” He dashes off to the library, digs out the paper, and possibly discovers that Joe had *thought* about it but had *done* very little but speculate. Our aspiring Nobelista now wonders, “Did anyone else pick up from here?” If, in fact, someone else had picked up the ball, it is reasonable to assume that any paper he published would cite the Schmaltz paper or, as I have so often found, cite one or more of the papers cited by Schmaltz.

I described the latter situation several years ago<sup>1</sup> in a typical case of unwitting duplication of research. The way one obtains such information in a few minutes is to check the *Science Citation Index*<sup>®</sup>. If one makes this routine check and finds that no one has, in fact, cited the Schmaltz paper, then we have a “negative” search result. But, as indicated in the title of this editorial, the so-called negative result is “positive” in two senses. In the first place, there is a reasonable certainty that no one has followed up Schmaltz’s work. Secondly, the result is “positive” in that it may be the result desired. In fact, almost every inventor has this attitude toward a patent literature search. That he is not properly motivated to search the literature is indicated by the larger number of patent applications that are rejected on the basis of prior disclosures.

The problem one has in searching traditional indexes is that one may have difficulty in finding the right words to begin the search. Oftentimes, research ideas or concepts are not easily translated into terms used by indexes. This has been ameliorated somewhat by the introduction of “natural” language indexes which use the words chosen by authors. ISI’s *Permuterm*<sup>®</sup> *Subject Index*<sup>2</sup> helps in

this way but is not the complete solution to the problem.

The problem of the negative *SCI*<sup>®</sup> search has an interesting sociological by-product which I mentioned recently in discussing the work of Gregor Mendel<sup>3</sup>. How many useful ideas lie dormant in the literature untapped by later generations of scientists? In a subsequent editorial, I will review the results of some data we obtained in compiling the *Genetic Citation Index*<sup>TM</sup> (1958-62). A random sample of articles from genetics journals that had not been cited in this five-year period in other genetics journals were followed

up in the *Science Citation Index* for 1964-68. We then asked the authors of the original papers to suggest a reason why this was so.

As was to be expected, there were several categories of replies. Much of the biological literature is descriptive. One wonders why biologists feel the need to create such information if no one ever uses it in subsequent research? Often there are many good economic reasons for compiling such information. It would appear, however, that many of these uncited papers provide an excellent source of material for graduate students to investigate for masters or doctoral theses.

1. Garfield, E. *Science Citation Index* - A new dimension in indexing. *Science* 144(3619), 649-654 (1964).
2. Garfield, E. *Permuterm Subject Index* - The primordial dictionary of science. *Current Contents*<sup>®</sup>/*Life Sciences* 12(22), 6 (1969).
3. Garfield, E. Would Mendel's work have been ignored if the *Science Citation Index* was available 100 years ago? *Current Contents/Life Sciences* 12(47), 5-6 (1969).